# APPENDIX C

**(CLEAN VERSION OF ALL PENDING CLAIMS)**

**(Serial No. 09/841,451)**

## CLAIMS

What is claimed is:

1. An airway adapter configured to substantially simultaneously provide data indicative of respiratory gas flow and of a concentration of at least two substances present in respiration of an individual, comprising:

a housing with a bore formed therethrough;

a respiratory flow detection component formed in said housing and in communication with said bore;

a first respiratory detection component in communication with said bore and configured to facilitate sensing of at least a first of the at least two substances; and

a second respiratory detection component in communication with said bore and configured to facilitate sensing of at least a second of the at least two substances.

2. (Amended) The airway adapter of claim 1, wherein said respiratory flow detection component comprises:

a structure within said housing for creating therein a pressure differential in respiratory gas flow; and

first and second pressure bores formed in said housing and located so as to facilitate detection of said pressure differential.

3. The airway adapter of claim 1, wherein said first respiratory detection component comprises:

a detection chamber within said housing, a boundary of said detection chamber at least partially defined by at least one window.

4. (Amended) The airway adapter of claim 3, wherein said boundary of said detection chamber is at least partially defined by opposed windows.

5. (Amended) The airway adapter of claim 3, wherein said at least one window is optically compatible so as to permit a beam of infrared radiation to traverse said detection chamber.

6. The airway adapter of claim 1, wherein said first respiratory detection component is configured to facilitate measurement of at least one of $CO_2$, $N_2O$, and an anesthetic agent.

7. The airway adapter of claim 1, wherein said second respiratory detection component comprises at least one luminescence quenching sensor.

8. The airway adapter of claim 1, wherein said first respiratory detection component and said second respiratory detection component include at least one common element.

9. The airway adapter of claim 3, wherein said second respiratory detection component is disposed on at least a portion of said at least one window.

10. The airway adapter of claim 3, wherein said at least one window is formed from a polymer.

11. The airway adapter of claim 10, wherein said polymer comprises a biaxially oriented polypropylene.

12. The airway adapter of claim 2, wherein said structure for creating said pressure differential comprises at least one strut.

13. (Amended) The airway adapter of claim 12, wherein said first and second pressure bores are at least partially formed within said at least one strut.

14. The airway adapter of claim 13, wherein said at least one strut comprises a restriction member with at least one surface oriented so as to substantially perpendicularly face a direction of respiratory gas flow through said housing.

15. The airway adapter of claim 14, wherein said restriction member has a disk shape.

16. The airway adapter of claim 14, wherein said at least one strut includes a taper oriented toward said detection chamber.

17. The airway adapter of claim 13, wherein said at least one strut is diametrically disposed and longitudinally extends within said bore.

18. (Amended) The airway adapter of claim 17, wherein said first and second pressure bores communicate respectively with laterally spaced first and second notches formed in said at least one strut proximate a longitudinal axis of said housing.

19. (Amended) The airway adapter of claim 18, wherein said first and second notches are oriented substantially perpendicularly relative to a length of said at least one strut.

20. (Amended) The airway adapter of claim 3, wherein said respiratory flow detection component comprises first and second pressurization ports positioned on opposite sides of said detection chamber.

21. (Amended) The airway adapter of claim 3, wherein said respiratory flow detection component comprises first and second pressurization ports formed in said housing on the same side of said detection chamber.

22. An airway adapter, comprising:

a first detection component configured to use infrared radiation to facilitate detection of at least one substance in respiration of an individual; and

a second detection component configured to employ luminescence quenching techniques to facilitate detection of at least another substance in respiration of the individual.

23. The airway adapter of claim 22, further comprising a respiratory air flow detection component.

24. The airway adapter of claim 22, wherein said second detection component is configured to facilitate detection of at least respiratory oxygen.

25. The airway adapter of claim 22, wherein said first and second detection components have at least one element in common.

26. The airway adapter of claim 22, wherein said second detection component comprises a luminescable material.

27. The airway adapter of claim 26, further comprising at least one window transparent to wavelengths of radiation capable of exciting said luminescable material and emitted by said luminescable material.

28. (Amended) The airway adapter of claim 1, wherein said first detection component comprises a detection chamber configured to communicate with respiration of said individual, a boundary of said detection chamber being at least partially defined by at least one window transparent to at least infrared radiation.

29. The airway adapter of claim 28, wherein said second detection component comprises a luminescable material.

30. The airway adapter of claim 29, wherein said luminescable material is at least partially disposed adjacent a surface of said detection chamber.

31. An airway adapter, comprising:
a housing including a bore formed at least partially therethrough;
a respiratory flow detection component in communication with said bore; and
an oxygen detection component in communication with said bore.

32. (Amended) The airway adapter of claim 31, further comprising another respiratory flow detection component in communication with said bore.

33. (Amended) The airway adapter of claim 32, wherein said another respiratory flow detection component is configured to facilitate detection of at least respiratory carbon dioxide.

34. (Amended) The airway adapter of claim 32, wherein said oxygen detection component and said another respiratory flow detection component share at least a portion of at least one element.

35. The airway adapter of claim 31, wherein said oxygen detection component comprises a luminescable material exposed to gases flowing through said bore.

36. An airway adapter, comprising:
a housing with a bore extending at least partially therethrough;
a respiratory flow detection component; and
a quantity of luminescable material exposed to gases flowing through said bore to facilitate detection of at least one component of said gases.

37. (Amended) The airway adapter of claim 36, wherein said luminescable material facilitates detection of at least oxygen.

38. The airway adapter of claim 36, further comprising an infrared-transparent portion.

39. The airway adapter of claim 38, wherein said infrared-transparent portion is configured to facilitate detection of at least carbon dioxide.

40. The airway adapter of claim 38, wherein said infrared-transparent portion is configured to facilitate detection of at least one anesthetic agent.

41. (Amended) The airway adapter of claim 38, wherein said luminescable material is located at least partially within a sampling chamber adjacent said infrared-transparent portion.

42. An airway adapter, comprising:
a housing including a bore formed at least partially therethrough;
a quantity of luminescable material in communication with said bore; and
an infrared-transparent portion in communication with said bore.

43. The airway adapter of claim 42, further comprising a respiratory flow detection component in communication with said bore.

44. The airway adapter of claim 42, wherein said luminescable material is at least partially located within a sampling chamber positioned adjacent said infrared-transparent portion.

45. The airway adapter of claim 42, wherein said luminescable material is configured to facilitate detection of at least oxygen.

46. The airway adapter of claim 42, wherein said infrared-transparent portion is configured to facilitate detection of at least carbon dioxide.

47. The airway adapter of claim 42, wherein said infrared-transparent portion is configured to facilitate detection of at least nitrous oxide.

48. The airway adapter of claim 42, wherein said infrared-transparent portion is configured to facilitate detection of at least an anesthetic agent in respiration.

49. (Amended) The airway adapter of claim 42, wherein said infrared-transparent portion is also substantially transparent to at least one wavelength of radiation that will excite said luminescable material and to at least another wavelength of radiation that is emitted by said luminescable material and that is indicative of an amount of a substance present in respiration of an individual.

50. A method for monitoring respiration of an individual, comprising, within a single housing, concurrently effecting sensing methods including at least two of employing infrared techniques to monitor at least one substance in respiration of the individual, employing luminescence quenching techniques to monitor at least one other substance in respiration of the individual, and measuring flow of respiration of the individual.

51. The method of claim 50, wherein said employing infrared techniques comprises monitoring an amount of at least one of carbon dioxide, nitrous oxide, and an anesthetic agent in respiration of the individual.

52. The method of claim 50, wherein said employing luminescence quenching techniques comprises monitoring at least an amount of oxygen in respiration of the individual.

53. The method of claim 50, wherein said measuring flow comprises generating a pressure differential across at least a portion of said single housing.

54. The method of claim 53, wherein said generating said pressure differential is effected at substantially a same location within said single housing as that at which at least one gas in respiration of the individual is monitored.

55. (Amended) The method of claim 54, wherein said generating said pressure differential is effected of substantially said same location within said single housing as that at which infrared techniques are employed.

56. The method of claim 54, wherein said generating said pressure differential is effected at substantially said same location within said single housing as that at which luminescence quenching techniques are employed.

57. The method of claim 50, comprising employing both infrared techniques and luminescence quenching techniques.

58. The method of claim 57, wherein said employing infrared techniques and said employing luminescence quenching techniques are effected to monitor gases present at substantially a same location of said single housing.

59. The method of claim 50, comprising each of said employing infrared techniques, said employing luminescence quenching techniques, and said measuring flow of respiration of the individual.

60. A method for monitoring respiration of an individual, comprising:
generating a pressure differential across a location of a housing of an airway adapter;
employing said pressure differential to measure a flow of respiration of the individual; and
monitoring an amount of at least one substance in respiration of the individual substantially at said location of said housing.

61. (Amended) The method of claim 60, wherein said monitoring said amount of at least one substance comprises:

directing infrared radiation of at least one wavelength from a first location, into said housing, through a flow path in said housing at said location, and through at least one of gases and other substances located within said flow path; and

detecting, from said location, an intensity of said at least one wavelength of infrared radiation that has passed through said at least one of gases and other substances in said flow path at said location.

62. The method of claim 61, wherein said directing infrared radiation comprises directing infrared radiation through a gas mixture including at least one of carbon dioxide, nitrous oxide, and an anesthetic agent.

63. (Amended) The method of claim 61, further comprising comparing said detected intensity of said at least one wavelength of infrared radiation to an original intensity of said infrared radiation of said at least one wavelength directed through said at least one of gases and other substances.

64. The method of claim 60, wherein said monitoring said amount of said at least one substance comprises:

directing toward a luminescable material at said location and exposed to a flow path in said housing radiation of at least one wavelength capable of exciting said luminescable material;

detecting an intensity of radiation of at least one other wavelength emitted by said luminescable material; and

determining a rate at which said intensity decreases.

65. (Amended) The method of claim 64, further comprising exposing said luminescable material to a mixture of at least gases that includes oxygen.

66. (Amended) The method of claim 65, comprising determining an amount of oxygen present in said mixture of at least gases based on said rate at which said intensity decreases.

67. (Amended) The method of claim 60, wherein said monitoring said amount of at least one substance comprises monitoring amounts of a plurality of substances in the respiration of the patient.

68. The method of claim 67, wherein said monitoring said amounts of said plurality of substances comprises at least employing infrared sensing techniques.

69. (Amended) The method of claim 68, wherein said at least employing infrared sensing techniques comprises monitoring an amount of at least one of carbon dioxide, nitrous oxide, and a gaseous anesthetic agent.

70. The method of claim 67, wherein said monitoring said amounts of said plurality of substances comprises at least employing luminescence quenching techniques.

71. The method of claim 70, wherein said employing luminescence quenching techniques comprises monitoring an amount of at least oxygen.

72. The method of claim 67, wherein said monitoring said amounts of said plurality of substances comprises:
employing infrared sensing techniques to monitor an amount of at least a first substance; and
employing luminescence quenching techniques to monitor an amount of at least a second substance.

73. The method of claim 72, wherein said employing infrared sensing techniques comprises monitoring an amount of at least one of carbon dioxide, nitrous oxide, and an anesthetic agent.

74. The method of claim 72, wherein said employing luminescence quenching techniques comprises monitoring an amount of at least oxygen.

75. (Amended) An airway adapter, comprising:

a housing with a flow passage extending therethrough;

a first window in said housing for facilitating luminescence quenching measurements of at least one substance within said flow passage;

a luminescable material disposed in communication with said flow passage and adjacent said first window; and

a pair of second windows positioned in said housing on opposite sides of said flow passage for facilitating infrared measurements of at least another substance within said flow passage.

76. The airway adapter of claim 75, wherein a membrane carrying said luminescable material is disposed on an inside of said first window.

77. The airway adapter of claim 75, wherein said first window is positioned on a top of said housing.

78. The airway adapter of claim 77, wherein each second window of said pair is positioned on a side of said housing.

79. The airway adapter of claim 75, wherein said housing includes a seat for receiving a complementarily configured portion of a transducer.

80. (Amended) The airway adapter of claim 79, wherein said seat is configured to orient a radiation source and luminescence detector toward said first window, an infrared source toward one second window of said pair, and an infrared detection component toward another second window of said pair.

81. (Amended) The airway adapter of claim 75, further comprising a respiratory flow detection component located along another position of said flow passage than positions of said first window and said pair of second windows.

82. (Amended) An airway adapter, comprising:

a housing including a flow passage extending through at least a portion of a length thereof;

a first window in said housing for facilitating luminescence quenching measurements of at least one substance in said flow passage;

a luminescable material disposed in communication with said flow passage and adjacent said first window; and

a second window in said housing for facilitating infrared measurements of at least another substance in said flow passage.

83. (Amended) The airway adapter of claim 82, wherein a membrane carrying said luminescable material is disposed on an inside of said first window.

84. (Amended) The airway adapter of claim 82, wherein said first window is positioned on a top of said housing.

85. (Amended) The airway adapter of claim 82, wherein said second window is positioned on a side of said housing.

86. (Amended) The airway adapter of claim 82, wherein said housing includes a seat for receiving a complementarily configured portion of a transducer.

87. (Amended) The airway adapter of claim 86, wherein said seat is configured to orient a radiation source and luminescence detector toward said first window and an infrared source and infrared detection component toward said second window.

88. (Amended) The airway adapter of claim 82, further comprising a respiratory flow detection component located along another position of said flow passage than positions of said first window and said pair of second windows.

89. (Amended) An airway adapter, comprising:
a housing with a flow passage extending through at least portion of a length thereof;
a pair of windows positioned on opposite sides of said housing; and
luminescable material positioned proximate at least a portion of one window of said pair of windows.

90. The airway adapter of claim 89, wherein said luminescable material is carried by a membrane disposed adjacent said one window.

91. The airway adapter of claim 90, wherein said membrane has an annular configuration.

92. The airway adapter of claim 90, wherein said membrane has a semicircular configuration.

93. The airway adapter of claim 89, wherein said housing includes a seat for receiving a transducer.

94. The airway adapter of claim 93, wherein said seat is configured to orient each of a radiation source that emits radiation of at least one wavelength that excites said luminescable material, a luminescence detector, an infrared source, and an infrared detection component toward one of said pair of windows.

95. The airway adapter of claim 94, wherein said seat is configured to orient said radiation source and said infrared source to direct radiation into a first of said pair of windows.

96. The airway adapter of claim 95, wherein said seat is configured to orient said luminescence detector and said infrared detection component so as to receive radiation exiting a second of said pair of windows.

97. The airway adapter of claim 94, further comprising optics in communication with said flow passage for redirecting at least one wavelength of radiation transmitted therethrough.